His *Theory* of *Apertures*, though he ſeems to think it very authentick, yet to me it ſeems not ſo cleer. For, the ſame Glaſs will endure greater or leſſer *Apertures*, according to the leſſer or greater Light of the *Object*: If it be for the looking on the *Sun* or *Venus*, or for ſeeing the *Diameters* of the *Fix'd Stars*, then ſmaller *Apertures* do better; if for the *Moon* in the *daylight*, or on *Saturn*, or *Jupiter*, or *Mars*, then the largeſt. Thus I have often made uſe of a 12 foot-Glaſs to look on *Saturn* with an *Aperture* of almoſt 3 inches, and with a ſingle Eye-glaſs of 2 inches *double convex*: but, when with the ſame Glaſs I looked on the *Sun* or *Venus*, I uſed both a ſmaller *Aperture*, and ſhallower *Charge*. And though Mr. *Auzout* ſeems to find fault with the *Engliſh* Glaſs of 36 foot, that had an *Aperture* of but 2¼ inches *French*, as alſo, with a 60 foot *Tube*, uſed but with an *Aperture* of 3 inchess yet I do not find, that he hath ſeen Glaſſes of that length, that would bear greater *Apertures*, and 'tis not impoſſible, but his *Theory* of *Apertures* may fail in longer Glaſſes.

Of a means to illuminate an Object in what proportion one pleaſeth; and of the Diſtances requiſite to burn Bodies by the Sun.

One of the means uſed by M. *Auzout* to enlighten an Object, in what proportion one pleaſeth, is by ſome great *Object-Glaſs*, by him called a *Planetary* one, becauſe that by it he ſhews the difference of Light, which all the *Planets* receive from the *Sun*, by making uſe of ſeveral *Apertures*, proportionate to their diſtance from the *Sun*, provided that for every 9 foot draught, or thereabout, one inch of *Aperture* be given for the *Earth*. Doing this, one ſees (*ſaith he*) that the Light which *Mercury* receives, is far enough from being able to burn Bodies, and yet that the ſame Light is great enough in *Saturn* to ſee cleer there, ſeeing that (to him) it appears greater in *Saturn*, than it doth upon our *Earth*, when it is overcaſt with Clouds: Which (he adds) would ſcarce be believed, if by means of this Glaſs it did not ſenſibly appear ſo; Whereof he promiſes to diſcourſe more fully in his

Treatiſe of the uſefulneſs of great Optick-Glaſſes, where he alſo intends to deliver ſeveral Experiments, by him made, 1. Touching the quantity of Light, which a Body, that is 10. 15 and 20 times, *&c.* remoter than *Saturn*, would yet receive from the *Sun.* 2. Touching the quantity of Light, by which the *Earth* is illuminated even in the *Eclipſes* of the *Sun*, in proportion of their bigneſs. 3. Touching the quantity of Light, which is neceſſary to burn Bodies: he having found, that not abating the Light, which is reflected by the Surfaces of the Glaſs (whereof he confeſseth, he doth not yet exactly know the quantity) there would be neceſsary about 50 times as much Light, as we have here, for the burning of *Black* Bodies; and neer 9 times more for the burning of *White* Bodies, than for the burning of *Black* ones: and ſo obſerving the immediate proportions between theſe two, for burning Bodies of *other* Colors. Whence (he tells us) he hath drawn ſome conſequences, touching the diſtance, at which we may hope, to burn Bodies here, by the means of *great Glaſſes* and great *Looking-glaſſes.* So that (*ſaith he*) we muſt yet be ſeven times neerer the *Sun*, than we are, to be in danger of being burned by it. Where he mentions, that having given *Inſtructions* to certain perſons, gon to travel in *Hot Countries*, he hath among other particulars recommended to them, to try by means of great *Burning-glaſſes*, with how much leſs *Aperture* they will burn *there*, than *here*, to know from thence, whether there be more Light *there* than *here*; and how much; ſince this perhaps may be the only means of trying it, ſuppoſing, the ſame matters be uſed: although the difference of the Air already heated both in *hot Countries*, and in the *Planets*, that are neerer than we may alter, if not the quantity of Light, at leaſt that of the Heat found there.

A further Account, touching Signor Campani's *Book and Performances about* Optick-glaſses.

In the above-mentioned *French* Tract there is alſo contained M. *Auzout's* Opinion of what he had found New in the *Treatiſe* of Signor *Campani*, which was ſpoken of in the firſt *Papers* of their *Tranſactions*, concerning both the Effect of the *Teleſcopes*, contrived after a peculiar way by the ſaid *Campani* at *Rome*, and

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